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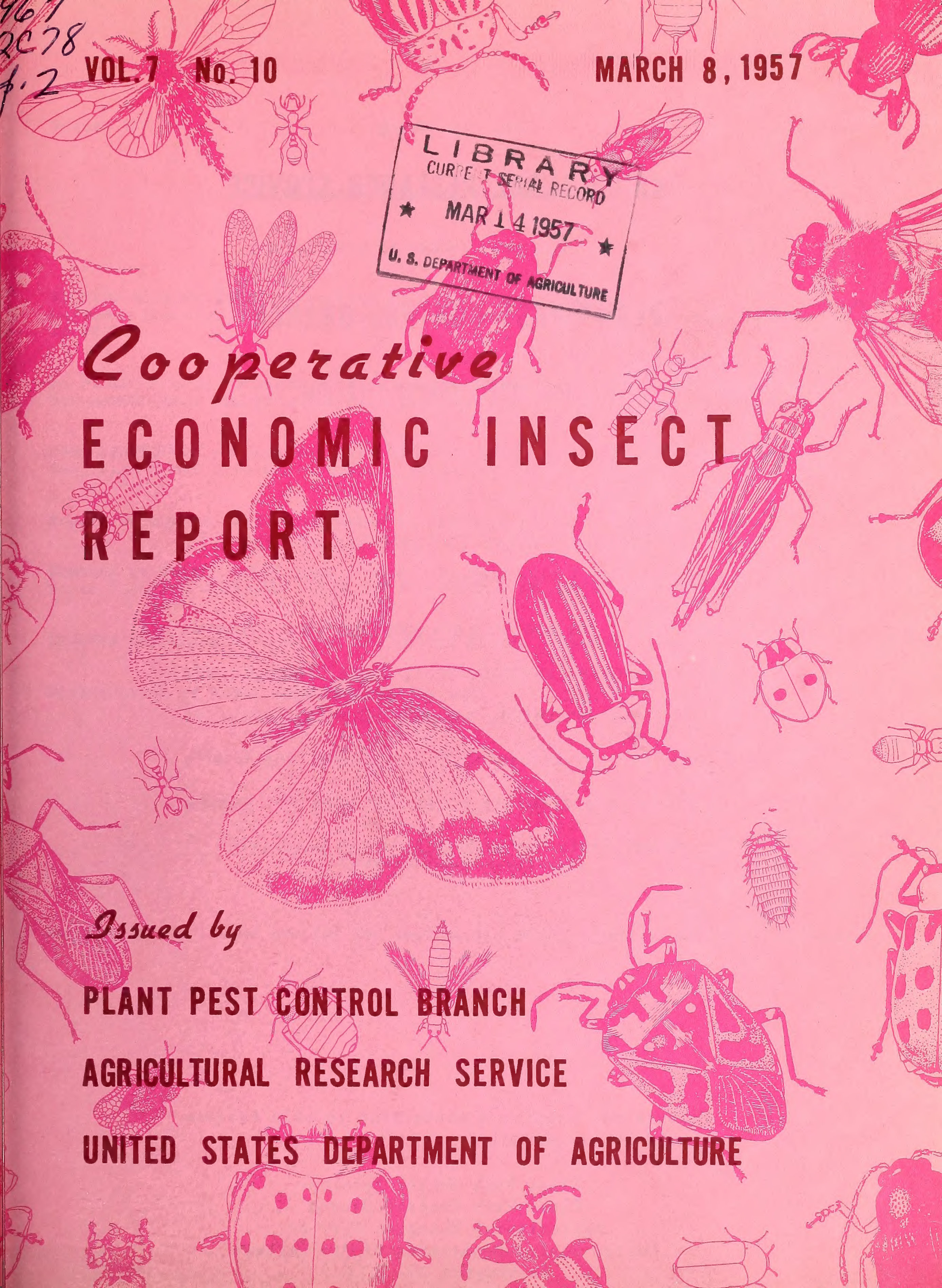

VOL. 7 No. 10

MARCH 8, 1957

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U. S. DEPARTMENT OF AGRICULTURE

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL BRANCH
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Branch serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Survey Section
Plant Pest Control Branch
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

Volume 7 March 8, 1957 Number 10

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID increasing in Clark County, Nevada and heavy in Brazos and Burleson Counties, Texas but low in some areas of Arizona, Oklahoma and Louisiana. (p.171).

In Piedmont area orchards of Virginia, EUROPEAN RED MITE and APHID eggs light, RED-BANDED LEAF ROLLER moths expected to emerge by April 1. (pp.172,176).

BEET LEAFHOPPER outlook for Intermountain Region. (p.172). Low populations in Bee, Karnes and Live Oak Counties, Texas. (p.173).

Report on number of interceptions of PESTS at ports of entry. (p.175).

SUMMARY OF INSECT CONDITIONS - 1956 - Pennsylvania (p.177), Oregon (p.177), North Carolina (p.182).

INSECTS not known to occur in the United States. (p.187).

Distribution of RANGE GRASSHOPPERS. (p.188).

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Reports in this issue are for the week ending March 1 unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

March 1957

The Weather Bureau's 30-day outlook for March calls for temperatures to average below seasonal normals over the eastern half of the nation except for slightly above normal in New England. Greatest departures are indicated over the Midwest. Areas west of the Continental Divide are expected to have prevailingly above normal temperatures. In areas not specified near normal averages are predicted. Precipitation is expected to exceed normal over the southern third of the country and also east of the Appalachians.Subnormal amounts are indicated over the northern third of the nation westward from the Great Lakes. In the remaining area near normal amounts are in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington 25, D.C. Price $4.80 a year, $2.40 half year.

WEATHER OF THE WEEK ENDING MARCH 4, 1957

The change of weather seasons was accompanied by a somewhat transposed sequence of temperature events in eastern portions of the country, with winter ending unseasonably warm and spring beginning under the influence of cold air mass conditions, while in the West warm weather prevailed most of the time. Throughout the Nation temperature averages for the week were within 3° of normal to much above with greatest departures of +12° or more being observed in eastern Montana. Storm centers and frontal activity were responsible for weekly precipitation totals which were moderate to extremely heavy in the Pacific Coastal States and over a large area of the country east of the Mississippi River, excluding only the northern Great Lakes Region. Significant amounts were also recorded along the Gulf Coast of Texas and in other scattered locations. Beneficial rains fell in Oklahoma on the 25th and 26th of February, and on the 2d of March up to 4 inches of snow was reported from the panhandle section of this State. At Manti, in a drought stricken area of Utah, a fall of 1.20 inch in 24 hours established a new record for March at that station. An Atlantic coastal storm moving northward brought sleet and glaze to the Middle Atlantic States on Thursday, and from 2 to 5 inches of snow to northern New Jersey and coastal New England by Friday. Other events of the weather this week were hailstorms which occurred in Texas over the weekend depositing depths of hail to 3 inches on the ground at Waco on Saturday and to 3/4 inch at Cotulla on Friday, tornado activity which was observed in the Lakeland area of Florida on Monday, and local flooding which occurred in some sections of Idaho, Washington, and Oregon as a result of the heavy rains and melting snow. Above normal temperature conditions continued to melt snow at lower elevations. At this time the cover is confined mainly to the northern Great Lake and northeastern States. Snow depths also decreased at lower and intermediate levels in mountain areas in the West. Depths at higher elevations in the Far West this week include 149 inches at Paradise Ranger Station, Washington; 88 inches at Crater Lake, Oregon; and 52 inches at both Soda Springs and Twin Lakes in California. Reports of ice thickness included 28 inches at Lake Pepin on the Mississippi in Minnesota; 35 inches at Williston, North Dakota; 12 inches at Huron, South Dakota; 25 inches at Green Bay, Wisconsin; 24 inches at Marquette, Michigan; 21 inches at Duluth, Minnesota; and 30 inches at Greenville, Maine. (Summary Supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - TEXAS - Heavy damage in 4 fields of small grain in Kaufman County. Medium to heavy infestations in Van Zandt County. (Davis, Hawkins, Randolph). LOUISIANA - Populations on small grains averaged 37 per sweep in East Carroll Parish, 9.3 per sweep in Madison Parish, 1.5 per sweep in Tensas Parish and 2 p/sweep in Concordia Parish. Total of 16 fields inspected. (Oliver).

EUROPEAN CORN BORER (Pyrausta nubilalis) - VIRGINIA - Larvae, 10 to 20 per stalk, in corn stalks in field in Sussex County. (Rowell).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Medium to heavy infestations on small grain in Van Zandt and Kaufman Counties. (Randolph).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Causing some damage to oats and barley in some demonstration plots in Kaufman County. (Hawkins).

ARMYWORM (Pseudaletia unipuncta) - LOUISIANA - Larvae, up to fifth instar, remain in oats and ryegrass at 1 to 7 per 100 sweeps in East Baton Rouge Parish. (Oliver).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Averages approximately 3 larvae per square yard of surface area for most small grain fields in Kingfisher County. (Coppock).

FLEA BEETLES - Medium infestation on 20 acres of young wheat near Peoria, Maricopa County. Probably Chaetocnema ectypa involved. (Ariz. Coop. Rept.)

PEA APHID (Macrosiphum pisi) - LOUISIANA - Averaged 150 to 300 per 100 sweeps in 3 alfalfa fields in East Carroll Parish. (Oliver).

SPOTTED ALFALFA APHID - ARIZONA - Populations have been low in Yuma area past month. (Ariz. Coop. Rept.). NEVADA - Populations increasing rapidly in Clark County with approximately 5 percent winged. (Gallaway, Feb. 15). OKLAHOMA - Very low populations in central area. Non-existent in many formerly heavily infested fields in Canadian, Kingfisher and Logan Counties. (Coppock). TEXAS - Light infestations in Maverick, Val Verde, Uvalde and Webb Counties (Turney) and heavy infestations in Brazos and Burleson Counties on young alfalfa (Randolph). LOUISIANA - Light populations of 3 to 20 per sweep in three alfalfa fields in East Carroll Parish. (Oliver).

COWPEA APHID (Aphis medicaginis) - TEXAS - Feeding on clover in McLennan County on January 20. (Turney).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - VIRGINIA - Light to medium in alfalfa on V.P.I. farms at Blacksburg. Not expected to be a problem this year. (Evans).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - LOUISIANA - Averaged 2 to 6 per 100 sweeps in alfalfa in 3 alfalfa fields in East Carroll Parish. (Oliver).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Infestation averaged 7 per 10 sweeps in alfalfa in Grimes County. (Davis). LOUISIANA - Averaged 3 to 10 per 100 sweeps in 3 alfalfa fields in East Carroll Parish (Oliver).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - TEXAS - Infestations averaged 3 per 10 sweeps in alfalfa in Val Verde County. (Turney). LOUISIANA - Averaged 4 to 10 per 100 sweeps in 3 alfalfa fields in East Carroll Parish. (Oliver)

ALFALFA WEEVIL (Hypera postica) - NORTH CAROLINA - Area of known infestation extended to include Alamance and Caswell Counties. (Jones, Dogger, Feb. 15-Mar.1.)

NEVADA - Adult activity underway in Churchill County. (Lauderdale).

CLOVER LEAF WEEVIL (Hypera punctata) - NORTH CAROLINA - Infestation generally heavier than in past years in north central counties on alfalfa. (Dogger, Jones; Feb. 15-Mar. 1).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae becoming severe some alfalfa fields in Peoria area of Maricopa County. (Ariz. Coop. Rept.).

FRUIT INSECTS

EUROPEAN RED MITE (Metatetranychus ulmi) - VIRGINIA - Egg numbers lower than for several years in Piedmont area apple orchards. Expected to be troublesome in some orchards this year. (Bobb).

BLACK CHERRY APHID (Myzus cerasi) - OREGON - Eggs, moderately abundant, hatching on cherry trees in Jackson County, February 27. (Gentner).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - OREGON - Winter adults depositing eggs within fruit buds of pear trees in Jackson County, February 25. (Gentner).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Building up early in several citrus groves north of Mesa. Probably result of abnormally warm weather. (Ariz. Coop. Rept.).

GRAPE ROOT BORER (Vitacea polistiformis) - NORTH CAROLINA - Caused death of 25 vines in 3 acre planting in Polk County. (Culbertson, Rabb).

PECAN CARPENTERWORM (Cossula magnifica) - NORTH CAROLINA - Local, active infestation in pecan trees in Columbus County. (Barden, Farrier, Feb. 15-Mar. 1).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - During first two weeks of February, number of flies trapped was reduced considerably in lower Rio Grande Valley and there were no larval findings. (So. Region, PPC).

TRUCK CROP INSECTS

Beet leafhopper conditions in Utah, Western Colorado, Southern Nevada, and Central Arizona - 1957

The beet leafhopper spring movement from the southern desert breeding grounds to the cultivated districts of north and south central Utah and western Colorado is expected to be light. The movement to southern Utah, southern Nevada and central Arizona is expected to be moderate. The local movement from the breeding grounds of northern and eastern Utah to the adjacent cultivated districts of northern Utah and western Colorado is expected to be light to moderate. These statements are based upon present conditions. The movement of the leafhopper into the cultivated districts of central Arizona, southern Nevada and southern Utah is expected to start by late March to mid-April. The movement to central Utah and western Colorado is expected to start by mid-April and will reach its peak by mid-May. The local movement to northern Utah and western Colorado is expected to start by late May and reach its peak in mid-June. The abundance of the population engaged in this movement will depend upon unpredictable weather fluctuations during the next month which affect the development of the beet leafhopper and its host plants. However, as a result of experience in previous seasons, conditions as observed in 1957 have been associated with light to moderate movement of leafhoppers to the cultivated districts. A later statement will be issued on beet leafhopper conditions based on additional information obtained from surveys now in progress. Because of the small numbers of leafhoppers found in the southern breeding grounds, few were tested to determine the percentage capable of transmitting the virus that causes curly top disease. Overwintering leafhoppers collected from northern Utah are being studied to determine percentage viruliferous. These percentages will be given in the second statement. (Dorst, Knowlton, Feb. 15).

BEET LEAFHOPPER (*Circulifer tenellus*) - TEXAS - Low population of nymphs and adults on flax in Bee, Karnes and Live Oak Counties. Some curly top damage in older flax. (Peay, Douglass).

GREEN PEACH APHID (*Myzus persicae*) - CALIFORNIA - Infestations serious enough to require plowing under of some fields of spinach in Orange County. (Campbell, Feb. 19).

CABBAGE APHID (*Brevicoryne brassicae*) - CALIFORNIA - Causing some damage in untreated fields in southern area. (Campbell, Feb. 19).

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*)- FLORIDA - Adults generally infesting Irish potatoes in Hague and Alachua areas of Alachua County. (Denmark).

SEED-CORN MAGGOT (*Hylemya cilicrura*) - CALIFORNIA - Damaged up to 40 percent of radishes near San Juan and Capistrano. (Campbell, Feb. 19).

ASPARAGUS BEETLES (*Crioceris asparagi* and *C. duodecimpunctata*) - NEW JERSEY - Major asparagus producing counties (7) were surveyed for overwintering abundance. In 46 fields, taking 100 stalks per field, total of 2399 *C. asparagi* and 171 *C. duodecimpunctata* were found. Averages indicate that Gloucester, Camden and Atlantic Counties had highest populations. Populations found in Cumberland, Salem and Burlington Counties were substantially lower. State average per 100 stalks per field was 52.2 for *C. asparagi* and 3.7 for *C. duodecimpunctata*. These findings should serve as basis for comparing populations in future years. (N.J. State Dept. Agric., Rutgers Univ. Coop.).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - MISSISSIPPI - Adults and pupa received from Lamar County on February 28. (Hutchins). NORTH CAROLINA - Turnips damaged in several home gardens. (Scott).

SPIDER MITES - NORTH CAROLINA - Many strawberry fields with two *Tetranychus* sp. per leaf and some with as many as 10 per leaf in Sampson County. (Scott, Feb. 15-Mar. 1).

THRIPS - Small numbers of *Scirtothrips citri* adults present in 60 acres of garlic south of Mesa causing light scarring of leaves. (Ariz. Coop. Rept.).

SALT-MARSH CATERPILLAR (*Estigmene acrea*) - ARIZONA - Adults attracted to light at Yuma, February 25. (Ariz. Coop. Rept.).

TOBACCO INSECTS

SOUTHERN MOLE CRICKET (*Scapteriscus acletus*) - FLORIDA - Runs averaging 1 to 2 per 5 linear feet of tobacco plant bed at Quincy, Gadsden County. Infestation reached point where now considered heavy. Mole crickets in Quincy area causing more damage to tobacco seed beds this year than in 1956, probably due to unseasonably warm weather during past 3 weeks. (Denmark, Feb. 8).

A SPRINGTAIL (*Isotomurus palustris*) - NORTH CAROLINA - In tobacco plant beds in Pitt County on February 9. (Weeks, Wray).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE BEETLES - NEVADA - Spotted locations of 1000 acres of ponderosa pine near Crystal Bay heavily damaged by Dendroctonus brevicomis, D. valens and D. monticolae in 1956. Infestation increased rapidly in 1956. (Zappettini).

SCALE INSECTS - VIRGINIA - Infestation of probably Aspidiotus sp. heavy on maple trees in Amherst. Became heavy last fall. (Amos, Wilkins).

TEA SCALE (Fiorinia theae) - FLORIDA - All stages averaged 1000 per leaf on 500 inspected one location and averaging 200 per leaf on 25 inspected another location on camellia at Fairvilla, Orange County. (Crews, Jan. 14).

AN APHID (Myzocallis discolor) - TEXAS - Feeding on live oak in Kinney County. (Turney).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Heavy on Euonymus at Leonardtown. (U. Md.; Ent. Dept.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - NORTH CAROLINA - Leaves of boxwood 90 percent infested in local infestation in Davidson County. (Jones, Rabb; Feb. 15-Mar. 1).

A LEAF ROLLER (Archips rosana) - OREGON - Found infesting holly at Eagle Creek. New host record in Oregon. Det. J.F.G. Clarke. (Swenson).

INSECTS AFFECTING MAN AND ANIMALS

Screw-worm Incidence in Some Southeastern States - 1956

FLORIDA - As determined by catches of screw-worm flies in status traps operated throughout the year in central and northern Florida, incidence of screw-worms was perhaps the heaviest of any year since their introduction. Infestations throughout peninsular Florida were particularly heavy in livestock and many cases in wildlife were reported. In the Collier County hunting area 26 known cases (deaths) in buck deer were reported during the year. All counties east of Holmes, Washington and Bay were infested. ALABAMA - Information indicates that only the extreme southeast county of Houston became infested. GEORGIA - Cases in livestock were rather heavy in counties adjoining Florida. SOUTH CAROLINA - Light infestation in seven counties in southern part of the State. Most screw-worm damage occurred in cattle and deer in coastal areas. (Skipper).

CATTLE GRUBS - OKLAHOMA - Very few live grubs remain. Counts on mature cows at Oklahoma City averaged 0.09 per animal; on yearling heifers at same location 0.75 per animal. (Coppock).

CATTLE LICE - MARYLAND - Light to moderate infestation of Bovicola bovis, Haematopinus eurysternus and Linognathus vituli on dairy cattle at Upper Marlboro, Prince Georges County. (U. Md.; Ent. Dept.).

AN EYE GNAT (Hippelates collusor) - ARIZONA - Bothersome at Yuma.(Ariz. Coop. Rept)

STORED PRODUCTS INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - Two new infestations, one at Phoenix, Maricopa County, and one at Globe, Gila County. (Ariz. Coop. Rept.).

MISCELLANEOUS INSECTS

TERMITES - PENNSYLVANIA - Swarming in homes generally. (Udine).

CLUSTER FLIES - PENNSYLVANIA - Generally very abundant in homes. (Pepper).

LITTLE HOUSE FLY (*Fannia canicularis*) - SOUTH CAROLINA - Adult infestation heavy in Johnston in Edgefield County. (Moore).

CLOVER MITE (*Bryobia praetiosa*) - NEVADA - Invasion of homes increasing in Washoe County. (Lauderdale).

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - MISSISSIPPI - Collected on one property in Attala County. (Hutchins).

A GOLDEN BUPRESTID (*Buprestis aurulenta*) - OREGON - Adults emerged in quantity from flooring of a home in Sherwood. (Capizzi).

Inspections and Interceptions from Foreign Countries Increase:

The extent to which opportunities for new pests to get into the country are increasing was forcibly illustrated by a recent review of inspection activities of the past ten years. Some of the more significant trends are listed below:

	FY-1947	FY-1956	Percent Increase
Aircraft inspected	60,113	97,351	62
Vessels "	37,329	46,087	23
Railway cars"	73,115	103,358	41
Vehicles "	6,703,961	17,262,188	156
Interceptions plant material	121,400	244,566	101
Shipments certified for export	5,846	45,524	679

Of special significance was the interception during the past fiscal year of nearly a quarter of a million lots of unauthorized plant material, more than twice the number intercepted ten years ago. From this material were taken many of the world's most serious pests, some of the more destructive species have been intercepted many times during the year. For example:

Mediterranean fruit fly	- 162
Citrus canker	- 139
Black spot of citrus	- 128
Melon fly	- 16
Oriental fruit fly	- 29
Golden nematode	- 26
West Indian fruit fly	- 110
Olive fruit fly	- 17
Pink bollworm	- 164
Durra stem borer	- 6

(P. Q. Div.).

CORRECTIONS

CEIR 6(52):1143, under Wyoming - European corn borer should read "infestation was *not* found this year".

CEIR 7(8): 137 TROPICAL RAT MITE - Should be *Bdellonyssus bacoti*.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrotis yps.	Prod. orn.	Perid. marg.	Feltia subt.	Heliothis zea	Trich. ni.
TEXAS							
College Station 2/16-28	7						
Winter Haven 2/1-15	138	99	30	70	59	9	60
Brownsville 2/17-23	4				6	6	
LOUISIANA							
Franklin 2/22-28	7	3	1		3		
Baton Rouge 2/23-3/1	15	18		1	28		
FLORIDA							
Monticello 2/19					1		
Quincy 2/14					1		
SOUTH CAROLINA (Counties)							
Oconee 2/16-22	7	2	2	2			
Charleston 2/11-17	3			1	1		

Additional collections: ARKANSAS - At Stuttgart, 1 black cutworm January 14 and 1 February 11 and 14 variegated cutworms week of February 7 and 1 week of February 14. No moth flights recorded from Fayetteville from January 4 to February 22. (Warren).

ADDITIONAL NOTES

ILLINOIS - Total of 100 sweeps were made in 10 alfalfa fields from Litchfield to Cairo to Dixon Springs to Effingham with no SPOTTED ALFALFA APHIDS recovered. PEA APHID was common as were many other insects. (Ill. Ins. Rept.).

VIRGINIA - RED-BANDED LEAF ROLLER moths expected to start emerging in Piedmont in about a month. APHID (Anuraphis roseus and Myzus persicae) eggs generally very light in Piedmont area apple orchards. Infestations expected to start light but develop into heavy infestations if control not applied. (Bobb).

SUMMARY OF INSECT CONDITIONS - 1956

PENNSYLVANIA

Reported by J. O. Pepper

Fruit Insects: Second generation of RED-BANDED LEAF ROLLER(*Argyrotaenia velutinana*) was very abundant on sucker growth of apple, but later sprays prevented fruit injury. On some orchards with short crops due to frost, orchardists became lax and severe leaf damage resulted from UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) and in the northeast from APPLE MAGGOTS. MITES, mainly TWO-SPOTTED SPIDER MITE and EUROPEAN RED MITE became severe in August causing some damage to the leaves. Numerous adults of the former and eggs of the latter present on the trees in the fall. On peaches ORIENTAL FRUIT MOTH caused some concern particularly where late sprays were neglected.

Cereal and Forage Insects: The ALFALFA WEEVIL (*Hypera postica*) was found in Fulton County in 1956, increasing the number of infested counties to 24. Loss of stand or severe damage resulted from this insect in many unsprayed fields. POTATO LEAFHOPPER (*Empoasca fabae*) on alfalfa was fairly abundant. EUROPEAN CORN BORER (*Pyrausta nubilalis*) was very abundant in the first generation, but failed to reflect this increase in the second generation. Spotted heavy infestations of HESSIAN FLY (*Phytophaga destructor*) were noted during the spring.

Insects Affecting Man and Animals: HORSE FLIES and DEER FLIES were very abundant in some areas and persisted for a long period. HOUSE FLIES were less than normal.

Vegetable Pests: SLUGS were very abundant, attacking home gardens and commercial crops. Several large fields of beans and corn had to be replaced because of SEED-CORN MAGGOT (*Hylemya cilicrura*).

Forest Insects: AN OLETHREUTID (*Eucosma gloriola*) increased considerably in Christmas tree plantations, particularly on Scotch and red pine. In some plantations, 10 percent of the tips were infested. This injury was severe enough to delay harvesting a year. EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) showed much more than usual injury to Scotch pines. *Pissodes approximatus* and PALES WEEVIL (*Hylobius pales*) continue to be problems. PINE CHAFER (*Anomala oblivia*) caused considerable injury to Scotch pine Christmas trees, particularly after the stand had been thinned out by previous cuttings. PINE ENGRAVER (*Ips pini*) appeared to be the cause of death of spots in stands of Scotch pines in Clearfield County.

Ornamental Insects: BAGWORMS (*Thyridopteryx ephemeraeformis*) were unusually abundant all over the State, but especially so in southern Pennsylvania. Many mature arborvitae and juniper completely defoliated. APHIDS were generally abundant on evergreens and deciduous trees.

SUMMARY OF INSECT CONDITIONS - 1956

OREGON

Compiled by Joseph Capizzi *

Highlights: LESSER GRAIN BORER infestations discovered in Amity, Astoria, and Silverton. First record of established populations for the State. OMNIVOROUS LEAF TIER - High populations and serious damage occurred to many legumes throughout the north and central Willamette Valley. Late larval development threatened strawberry crop in northern counties. A new pest of potential danger to gooseberry plantings in Oregon was *Opostega* sp. (near *nonstrigella* Chamb.). ALFALFA WEEVIL populations were highest encountered for several years. Early season counts averaged 60-80 larvae per sweep in some fields in eastern counties. Baker County Agents estimated a 20 percent loss of crop. COLORADO POTATO BEETLE was more abundant than for 4 to 5 years, particularly high in Malheur County. WESTERN YELLOW-STRIPED ARMYWORM - Serious outbreaks on several crops throughout the central part of State. SOD WEBWORMS were more prevalent than for several years in Willamette Valley and Union County. ORIENTAL FRUIT MOTH - Several specimens collected in bait traps at Portland and Salem. First interception since 1951 at The Dalles. PEAR PSYLLA was first reported from Malheur County. *Allomyia* sp., a new species of juniper tip miner, causing wide spread damage in Portland area. *Acleris lipsiana*, a species new to United States - Found infesting cranberries in several bogs at Bandon.

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* With the assistance of entomologists from the State Department of Agriculture, Oregon State College, and other agencies.

Cereal and Forage Insects: ALFALFA WEEVIL (*Hypera postica*) caused serious damage in Union, Malheur, and Baker Counties. Hay yields were reduced up to 50 percent. Counts of 60 to 80 larvae per sweep were not uncommon during June and July. Adults were found in Wallowa County for the first time. PEA APHID (*Macrosiphum pisi*) populations remained low throughout the pea and alfalfa growing areas until late in the season. Control measures were necessary however, in the alfalfa seed growing section of Malheur County. For the first time in several years there was an outbreak of the WESTERN YELLOW-STRIPED ARMYWORM (*Prodenia praefica*) in several parts of the State. CUTWORM data on forage crops (and others) have been compiled in Table 1.

Table 1.

Insect	County	Crop	Acres treated	Estimated loss	Estimated savings
Prodenia praefica	Klamath	Clover, Alfalfa	5,300	$28,000	$60,000
Prodenia praefica	Jackson	Clover, Alfalfa	3,000	3,000	10,000
Prodenia praefica	Deschutes	Potatoes	180	1,200	6,000
Prodenia praefica	Lake	Oats, Austrian peas	200	1,000	4,000
Agrotis ypsilon and *Peridroma margaritosa*	Lane	Table beets Sweet corn	155	1,100	7,000
Euxoa ochrogaster and others	Jefferson	Clover Alfalfa	600	1,300	12,500
Crymodes devastator	Union	Grasses	1,500	5,000	25,000
Totals			10,935	$40,600	$124,500

There are indications of a gradual build-up of SOD WEBWORMS (primarily *Crambus* sp.) in past few years. Without concerted control effort grass seed growers would have suffered extensive losses in Union County. Grass-growing areas in the Willamette Valley were commonly infested and frequently lawn damage was reported. OMNIVEROUS LEAF TIER (*Cnephasia longana*) was extremely abundant on vetch, clovers, and other legumes from Benton County north into Washington County. The highest populations of ALFALFA CATERPILLAR (*Colias philodice eurytheme*) seen for several years developed in Morrow and Umatilla Counties. Many growers were forced to harvest third cuttings early to avoid economic loss. The ZEBRA CATERPILLAR (*Ceramica picta*) caused local damage to mint fields in Jefferson County during September. A MEALYBUG (*Heterococcus graminicola*) damaged plants of Merion bluegrass in Jackson County. Some clover fields in Marion County were heavily infested by CLOVER SEED CHALCID (*Bruchophagus gibbus*) with a resultant loss in seed crop. *Lygus* sp. were prevalent in clover and alfalfa throughout the State. Ten per sweep were a common average in Malheur and Baker Counties until late summer. Fifteen to twenty-five per sweep were average in Jackson and Josephine Counties during the same period. DATE MITE (*Oligonychus pratensis*) was present in numbers sufficient to warrant control measures in grass seed acreages throughout Union County. GRASSHOPPER outbreaks occurred in several areas. Weather conditions favorable for plant growth decreased expected damage in Wallowa and Grant Counties. Cooperative control measures were not undertaken in these counties and localized damage to grain and alfalfa crops was experienced. Data concerning acreages treated for grasshopper control in the State have been tabulated in Table 2.

Table 2

Grasshoppers	County	Acres Treated	Estimated Loss	Estimated Saving
	Jackson	800	$12,000	$25,000
	Grant	3,000	20,000	6,000
	Douglas	2,958	4,000	11,000
	Lane	300	3,000	19,000
	Union	500	2,000	10,000
	Wallowa	380	40,000	3,800
Totals		7,938	$81,000	$74,800

Fruit Insects: Sudden freezes in November of 1955 and the winter of 1956 caused widespread damage to Oregon fruit trees and caneberries in the northern half of the State. The Milton-Freewater area suffered almost complete loss of trees and berries. Fruit growing sections of northwestern Oregon experienced moderate to severe winter injury which accounts for several unusual infestations and variant control practices exercised in 1956. BARK BEETLES and SHOTHOLE BORERS attacked injured and dying trees and, many growers deferred dormant sprays fearing aggravation of tree injury. Still others were reluctant to invest in control measures with such a poor crop year in prospect. As a result, unusual populations of pear psylla, scale, aphids and mites developed. In areas not affected by the freeze, PEAR PSYLLA (*Psylla pyricola*), CODLING MOTH (*Carpocapsa pomonella*) and WESTERN CHERRY FRUIT FLY (*Rhagoletis cingulata indifferens*) were adequately controlled in commercial orchards. A prolonged warm summer made a fourth cover application necessary for codling moth. Where this treatment was ommitted, some late entries were observed in the Willamette Valley. ORIENTAL FRUIT MOTH (*Grapholitha* molesta) was found in the Willamette Valley for the first time. An extensive trapping program, in operation since 1945 will be intensified in 1957. The few moths collected were all found during September at locations in close proximity to packing plants handling peaches from out of State or, were present in orchards whose owners utilize used lugs and crates from these processors. There was some commercial damage to apples and pears at Hood River by PEAR LEAF BLISTER MITE (*Eriophyes pyri*). EUROPEAN RED MITE (*Metatetranychus ulmi*) appears to be increasingly resistant to the organic phosphates at Hood River and Medford. Economic infestations were present in most fruit-growing areas. A MITE (*Vasates fockeui*) caused localized damage (by russeting plum fruit) at LaGrande and in the Willamette Valley. *Tetranychus mcdanieli* was present in large numbers on cherry trees at The Dalles and caused premature defoliation in some orchards. BLACK CHERRY APHID (*Myzus cerasi*) is taking on added importance. Infestations were generally heavy and control measures necessary in the Willamette Valley. Spotted occurrence was reported at The Dalles. A GEOMETRID, that has caused extensive defoliation of fruit trees within the city of Portland for several years has been identified as *Operophtera occidentalis*. WESTERN PEACH TREE BORER (*Sanninoidea exitiosa graefi*), though not particularly abundant during 1956, did injure several plantings of prunes in the Willamette Valley and damaged young peach and prune trees set out at Milton-Freewater. WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata*) was of concern to peach growers in the Willamette Valley and some control measures were taken to protect ripening fruit. FILBERTWORM (*Melissopus latiferreanus*) damage was exceptional as a result of neglected control measures. Marketing experts report 2.4 percent "wormy" nuts at the packing plants. Growers and county agents report damage up to 25 percent in the orchards. A FILBERT LEAF ROLLER (*Archips rosana*) infestations were moderate to heavy from Marion and Polk Counties south through Lane County. Many neglected orchards had 15 to 20 percent of the leaves rolled in late June.

WALNUT APHIDS (*Chromaphis juglandicola* and *Panaphis juglandis*) were generally abundant, perhaps increased slightly over 1955. It is not known to what extent these aphids affect nut quality or quantity. SAN JOSE SCALE (Aspidiotus perniciosus) is showing up in increasing numbers primarily due to the use of speed-concentrate spray methods and perhaps, to carelessness on the part of some growers. Build up of scale in tree tops and orchard borders has been reported from Jackson County. Favorable weather conditions permitted the build up of TWO-SPOTTED SPIDER MITES (Tetranychus sp.). Economic injury occurred to strawberries and red raspberries especially in Multnomah, Clackamas, and Washington Counties. The large numbers of inquiries received indicate that the RASPBERRY ROOT BORER (Bembecia marginata) is on the increase in the Willamette Valley. The ORANGE TORTRIX (Argyrotaenia citrana) continues to be of local importance on a variety of hosts. Control measures were necessary on caneberries. OMNIVEROUS LEAF TIER attacked strawberries, caneberries, and young fruit trees. The late spring of 1956 made this pest a particular hazard on fresh fruit but controls were very effective in western area. Accurate timing of insecticide application has resulted in an estimated saving of $50,000.00 by the control of CURRANT FRUIT FLY (Epochra canadensis) on gooseberries in Marion County. Savings approximate this figure in Washington County also. A new pest of gooseberries was discovered mining the twigs and causing die-back. The known infestation extends from Benton to Washington Counties in scattered plantings. This pest has been tentatively identified as (Opostega sp. near nonstrigella). WESTERN RASPBERRY FRUITWORM (Byturus bakeri) was found infesting cultivated blackberries at Nehalem. This is possibly the first record of the pest on a cultivated crop in Oregon. Considerable loss has been experienced by cranberry growers in the Coos Bay-Bandon areas from the attack of BLACK-HEADED FIREWORM (Rhopobota naevana). Growers reluctance to follow a recommended control program is the primary cause of this loss. A new pest,to the United States,of cranberries has been discovered in a restricted area near Bandon. It is a TORTRICID (Acleris lipsiana) which feeds within the fruit, emerging shortly before harvest. This may develop into a pest of economic concern.

Truck Crop Insects: PEA LEAF WEEVIL (Sitona lineata) extended its range further in Marion County and into eastern Multnomah County. Higher populations (than in 1955) were present on canning and freezing varieties of peas near Hillsboro and Canby. SEED-CORN MAGGOT (Hylemya cilicrura) destroyed 15 to 20 percent of two seedling plantings of beans and melons at Milton-Freewater. WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata) appeared in larger numbers than have been seen for many years. Commercial plantings of sweet corn and green beans, and home planted garden crops were damaged throughout the Willamette Valley. CUTWORM injury to truck crops has been listed in Table 1. SYMPHYLIDS are probably the most serious pest on truck crops in Oregon. In some areas it is becoming nearly impossible to raise vegetables because of their presence. Reports of extensive damage to strawberries and sugar beets were received from Malheur County. Severe losses up to 20 percent of the crop, as a result of ONION MAGGOT (Hylemya antiqua) feeding occurred in Malheur County. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) is becoming increasingly important in Malheur County. Growers report the highest populations in their memory. Most fields required insecticidal control. A MINT FLEA BEETLE (Longitarsus waterhousei) was first reported from Columbia County during 1956. New plantings of mint in Jefferson County were locally damaged by A CUTWORM (Heliothis phloxiphaga) and ZEBRA CATERPILLAR (Ceramica picta). STRAWBERRY ROOT WEEVILS have been a problem to mint growers near Hermiston.

Forest, Ornamental and Shade Tree Insects: Surveys indicate a continued decline in forest insect outbreaks. Infestations of the DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) dropped to 20,930 acres during 1956. Populations of SPRUCE BUDWORM (Choristoneura fumiferana) are the lowest since detailed records were started in 1947. All of the 536,120 acres infested are located in the Blue Mountains are and are of light intensity. A PINE ENGRAVER (Ips oregoni) has increased in importance with most of the 85,640 acre infestations located in the Blue Mountains. A WOOLLY APHID (Chermes piceae) is now the number one forest insect problem in Oregon having increased to epidemic proportions from 35,680 acres in 1955 to 152,210 acres in 1956. The major area of attack is in the Cascade Mountains, with subalpine fir the host. An aggressive center of infestation has been discovered damaging Pacific silver fir in the Coast Mountains. MOUNTAIN PINE BEETLE (Dendroctonus monticolae) infestations are increasing with 95,760 acres of western white, lodgepole and ponderosa pine being attacked. Insect species attacking ornamentals and shade trees were active in normal numbers with the exceptions of those listed below. A HOLLY BUDMOTH (Rhopobota naevana ilicifoliana) has further extended its range from Clackamas and Multnomah Counties south into Marion County. HOLLY LEAF MINER (Phytomyza ilicis) was discovered in commercial plantings at Astoria, a considerable distance from the Portland area of original infestation. A new species of a TIP MINING MIDGE (Allomyia sp.) is causing considerable damage to ornamental juniper in Gresham nurseries. WESTERN-SPOTTED CUCUMBER BEETLE damaged a variety of ornamentals, shrubs, and flowers throughout the Willamette Valley.

Household Pests: VARIED CARPET BEETLE (Anthrenus verbasci) and BLACK CARPET BEETLE (Attagenus piceus) have been reported damaging household fabrics in increasing numbers. TERMITES, especially (Reticulitermes hesperus), are a serious problem in most areas of the State. Judging from the number of inquiries received, CARPENTER ANTS (Campanotus sp.) are widespread and destructive in Oregon. ROACHES continue to be a major household pest and, though not the most prevalent species, BROWN-BANDED ROACH (Supella supellectilium) is appearing at widely scattered locations in the State. FIREBRATS and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) are among the most common household pests. INDIAN-MEAL MOTH (Plodia interpunctella) has shown up frequently in homes where nuts are stored.

Stored Products Pests: No KHAPRA BEETLES have been found. Dermestids collected in stored grain establishments were predominately in the genera Anthrenus and Attagenus. LESSER GRAIN BORER (Rhyzopertha dominica) was found at several locations in the Willamette Valley. Many other common species of stored grain pests were observed during the khapra beetle survey. Western Oregon generally had the greater number of infestations due to climatic conditions favorable for insect development.

Beneficial Insects: In Wallowa and Umatilla Counties GOATWEED BEETLES (Chrysolina spp.) are showing good local weed control. A WEEVIL (Apion ulicis) introduced in the Bandon area to aid in the control of gorse has successfully completed a part of its life cycle, but has not spread to any extent from the original release sites. Under the supervision of the State Bee Inspector, 14,404 hives were inspected representing approximately 1/3 of the total number of hives in the State. Of this number, 225 hives had American foul brood, and 108 hives had European foul brood. A total of 1,434 colonies were found dead, a considerable increase over 1955. This high mortality is attributed to climatic conditions.

SUMMARY OF INSECT CONDITIONS - 1956

NORTH CAROLINA

Reported by M. H. Farrier. Summarizing over 900 reports of more than 150 individuals representing over 24 Federal, State and private agencies who submitted specimens or data regarding 252 species of the 11,000 arthropods known to be in North Carolina.

New Records of Economically Important Insects: SPOTTED ALFALFA APHID was discovered in late July. In a survey conducted in September it was found over most of the western counties and east to the Coastal Plains. Importance in State yet to be ascertained. Northernmost known limits of a CHINCH BUG (Blissus leucopterus insularis) was extended into North Carolina in August when a lawn mixture including St. Augustine grass was severely damaged in New Hanover County. Complaints of damaged strawberry crowns were rather common in western area, but only one larval specimen of a GELECHIID (Aristotelia disconotella) was found, a new State record. The southern limit of a JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) was extended across North Carolina to Mecklenburg County in 1955.

Highlights: Reports of SCALE INSECTS infesting ornamental shrubs were unusually numerous in eastern area. Most frequently reported was A WAX SCALE, while WHITE PEACH, OAK LECANIUM, COTTONY-CUSHION, and CAMELLIA SCALES were received many times. CORN EARWORM continued to plague commercial and home-grown sweet corn. Other crops were not as severely attacked as in 1955. There was a definite reduction in sales prices of green beans at many eastern markets due to damage by the COWPEA CURCULIO. The late, cool spring encouraged development of the SEED-CORN MAGGOT in many field, vegetable and floral crops. BAGWORMS were numerous throughout the season on ornamental shrubs. SPIDER MITES plagued cotton growers. BOLL WEEVIL infestation varied greatly from field to field. BUDWORM infestations on tobacco were about six times those of 1955 and very severe in many areas. In the northern Piedmont area SPRINGTAILS, most of which were harmless, were found on tobacco plant beds. TOBACCO THRIPS attacked newly-set tobacco in the northern Piedmont area, but extent of damage was debatable. TOBACCO FLEA BEETLE generally plagued flue-cured tobacco, and some beetles were present in burley tobacco production areas. TOBACCO FLEA BEETLE was widespread and severe on numerous other crops. SOUTHERN PINE BEETLE continued to damage pine forests severely in two western counties, with scattered infestations in others. SALT-MARSH MOSQUITO continued to be a problem in coastal areas, but hurricanes did not blow them far inland. More reports of TERMITES were received than ever before, and many home owners suspected winged ANTS to be TERMITES. A large eastern North Carolina elevator operator estimated that over five percent of the shipments of new corn received in October had been damaged by weevils, mainly RICE WEEVIL. The following pests were local, but severely damaging: PEPPER MAGGOT in peppers, the ASIATIC GARDEN BEETLE in bluegrass-white clover pastures, and EUROPEAN CORN BORER in Irish potatoes and corn.

Cereal and Forage Insects: Alfalfa has been hard hit during the past two years with new pests. SPOTTED ALFALFA APHID was reported initially in 1956 and the ALFALFA WEEVIL (Hypera postica) spread southward into Wake, Franklin, Warren, and Halifax Counties for the first time. In late April, Franklin County averaged 615 H. postica larvae per 100 sweeps, and the first cutting was a complete loss on many farms. PEA APHID (Macrosiphum pisi) was damaging in Wake and Franklin Counties in April. In Johnston County, MEXICAN BEAN BEETLE (Epilachna varivestis) was observed feeding on alfalfa in two locations, and though eggs were deposited, none were observed to hatch. Grubs of GREEN JUNE BEETLE (Cotinis nitida) were numerous in alfalfa fields in Buncombe County in early October. Corn was attacked by larvae of BILLBUGS (Calendra sp.) in eastern areas. Complete destruction of plantings not uncommon. CHINCH BUG (Blissus leucopterus) movement to corn from grain fields occurred in late May and June in some areas. One or two adults or nymphs per stalk were not uncommon in east central counties in early October. Fall survey for EUROPEAN CORN BORER (Pyrausta nubilalis) indicated infestations in most of the northeastern counties bordering on salt water and south to include

Carteret County. Relationship between areas of intensive Irish potato production and heavy fall infestations in corn was evident. Infestations as high as 10 to 20 per corn stalk with 50 to 80 percent of the stalks infested, were common in Pasquotank County. Stalk infestations by SOUTHERN CORNSTALK BORER (*Diatraea crambidoides*) ranged from 0-12 percent in October in eastern counties. SOD WEBWORM (*Crambus* sp.) destroyed 40 acres of corn in Hyde County, and another field in Iredell County, while SUGARCANE BEETLE (*Euetheola rugiceps*) and COWPEA CURCULIO (*Chalcodermus aeneus*) were especially destructive to corn locally in Robeson and Sampson Counties, respectively. In October, corn fields in some coastal counties had over 50 adult RICE WEEVILS (*Sitophilus oryza*) per ear with 25 to 30 percent of the kernels punctured. Infestations were 2 to 3 times worse than fall of 1955. CORN EARWORM (*Heliothis zea*) egg counts per silk at Faison were: 5.53 on May 31; less than 1 during late June and most of July; and 14.13 on August 9. The less than 1 counts in late June and most of July resulted in near 100 percent infestation of the ears. The highest average, late in the season, was 19.47 eggs per silk. These figures are reflected in infestations in other crops. A CORN SAP BEETLE (*Carpophilus* sp.) was reported damaging corn in Person County. CLOVER LEAF WEEVIL (*Hypera punctata*) was light in some counties. A TREE HOPPER (*Vanduzea triguttata*) 6 to 8 per stem, caused unusual, moderate leaf drop in a field of lespedeza in Lee County in September. Small grains were infested locally, much more severely in eastern counties, by APHIDS (prob. *Toxoptera graminum*) in November and December. ARMYWORM (*Pseudaletia unipuncta*) was usually light and local in oats in Cleveland, Stanly and Lincoln Counties in early May. ASIATIC GARDEN BEETLE (*Autoserica castanea*) injured pastures extensively in Haywood County where heavy infestations of 15 to 25 larvae per square foot resulted in the complete destruction of vegetation. Many GREEN JUNE BEETLES were present in some pastures in Gates and Pamlico Counties. Most general pest of grain sorghum was CORN EARWORM (*Heliothis zea*); late plantings up to 50 percent infested in Nash and Randolph Counties. Usual counts were 2 to 5 larvae per 25 heads in most Piedmont and Coastal areas. APHIDS were severe on milo in Tyrrell County as was FALL ARMYWORM (*Laphygma frugiperda*), locally, in Currituck County. Soybeans, generally, in the eastern half of the State, suffered some defoliation by MEXICAN BEAN BEETLE. Scattered infestations of wheat by BLACK GRAIN STEM SAWFLY (*Cephus tabidus*) ranged from 1 to 25 percent of stalks infested in Duplin, Iredell, and Scotland Counties. CORN EARWORM was not particularly injurious to peanuts. Early, spotty attacks by THRIPS were seen. TERMITES (*Reticulitermes* sp.) caused wilting and pod damage in peanuts in Gates County by tunneling in tap roots and stems. POTATO LEAFHOPPER (*Empoasca fabae*) was present in most peanut fields in late June and July and locally severe in northeastern counties.

Fruit Insects: Larger commercial apple orchardists, did not report unusual problems. Local reports of apple pests were numerous. Foremost was WOOLLY APPLE APHID (*Eriosoma lanigerum*). Blueberries were infested locally but severely by BLUEBERRY BUD MITE (*Aceria vaccinii*)and locally by *Oberea ruficollis* and a WAX SCALE (*Ceroplastes* sp.). PEAR-SLUG (*Caliroa cerasi*) severely skeletonized leaves in a small cherry planting in Burke County in early June. Local infestations of GRAPE LEAF SKELETONIZER (*Harrisina americana*) in Pender, Alamance, Harnett and Lee Counties; up to 20 to 30 larvae per leaf. Most frequently reported peach insect was WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) . Reports were limited to Piedmont and Coastal Plains. ORIENTAL FRUIT MOTH (*Grapholitha molesta*) caused noticeable twig injury in a few orchards in Montgomery and Pitt Counties. Pecan trunks were severely infested with FLATHEADED APPLE TREE BORER (*Chrysobothris femorata*) in a Cleveland County grove. Strawberries were attacked by a wide range of pests, but STRAWBERRY SPIDER MITE (*Tetranychus atlanticus*) was most widespread with many fields receiving acaricides. Local, moderate, infestations of STRAWBERRY LEAF ROLLER (*Ancylis comptana fragariae*) and STRAWBERRY ROOTWORMS (*Paria* spp.) were reported from Columbus and Pender Counties respectively. Unusual infestations in strawberries, mostly moderate to severe, including sugarcane beetle, tobacco wireworm, lesser cornstalk borer, a termite (*Reticulitermes* sp.), and corn earworm. Widespread damage was reported from the western area and was suspected of being STRAWBERRY CROWN MINER but the larvae collected were of a closely related species, *Aristotelia disconotella*, which is a new State record.

Truck Crop Insects: Gardens in the Coastal Plains and in the mountains were injured more than usual in 1956 by CUTWORMS. General damage by the VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) was reported from Buncombe and Yancey Counties. Beans were severely defoliated throughout the Coastal Plain by MEXICAN BEAN BEETLE. COWPEA CURCULIO (*Chalcodermus aeneus*) caused reductions of sale prices of beans in Duplin County. Infestations quite general over southeastern counties. BEAN LEAF BEETLE (*Cerotoma trifurcata*) attacked bean foliage in Coastal Plains counties. HARLEQUIN BUG (*Murgantia histrionica*) infestations were severe on crucifers and usual control methods were inadequate in southern Piedmont and Coastal Plain counties. It was impossible to grow collards in late summer in Duplin County w/o insecticide protection. Counts of 30-40 nymphs per plant were common on untreated plants. A LEAF MINER caused severe damage to collards in Cumberland County and control utilized in Wake County. CABBAGE LOOPER (*Trichoplusia ni*) persisted on cabbage in Hyde County where 10 percent of heads were lightly infested. In the mountains CABBAGE MAGGOT (*Hylemya brassicae*) caused severe damage to some fields while the SEED-CORN MAGGOT (*Hylemya cilicrura*) caused severe damage locally in Warren County. Infestations by STRIPED and SPOTTED CUCUMBER BEETLES (*Acalymma vittata* and *Diabrotica undecimpunctata howardi*) increased on cucumbers in southeastern counties until late, heavy infestations were difficult to control. Both larvae and adults of COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) attacked eggplant beds in Duplin County in the spring. Spotty infestations of the CORN EARWORM ranged from light to heavy in commercial plantings of lettuce in Pasquotank County. Bell peppers were attacked early by ELONGATE FLEA BEETLE (*Systena elongata*) in Cleveland County. Up to 50 percent of pepper variety Red Cherry was found infested by larvae of PEPPER MAGGOT (*Zonosemata electa*) in experimental plots in Duplin County. Hungarian wax peppers in adjacent plots were not injured. In early August a severe general infestation resulted in a temporary close of markets to peppers from Cleveland County. About 200 acres under contract had up to 25 percent of the fruit infested. COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) injured Irish potatoes over most of the State in May. Irish potatoes in the coastal counties infested by EUROPEAN CORN BORER with some late varieties having 6-8 larvae per stem. POTATO TUBERWORM (*Gnorimoschema operculella*) was reported from Johnston and Wayne Counties. Numerous infestations occurred in Jones County. A MEALYBUG (*Phenacoccus solani*) attacked stored potatoes in Edgecombe County. SQUASH BEETLE (*Epilachna borealis*) was reported from Caldwell County. Though unusually not destructive to sweetpotatoes in North Carolina, the GOLDEN and MOTTLED TORTOISE BEETLES (*Metriona bicolor* and *Deloyala guttatta*) destroyed a sweetpotato bed in Hoke County. WIREWORMS were pests of sweetpotatoes locally.

Tobacco Insects: By April 6 several plant beds in eastern counties were infested with TOBACCO FLEA BEETLE (*Epitrix hirtipennis*), and by April 20 infestation was general throughout eastern and north central areas with severe damage in some localities where control was not effected. VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) was locally light to moderate by April 20 in the eastern half of the State. The only springtail particularly injurious to tobacco beds is GARDEN SPRINGTAIL (*Bourletiella hortensis*) which was found only in Rockingham County. Several other species were found in large numbers, but there was no instance of damage reported. In spite of this, farmers finding infested plant beds usually used insecticide. WHITE GRUBS, MIDGE larvae, SNAILS, SLUGS, CUTWORMS, APHIDS and CRANE FLY larvae were all reported as local pests of plant beds in the eastern part of the State. The worst pest of flue-cured tobacco in the field was TOBACCO BUDWORM (*Heliothis virescens*). Heaviest infestations occurred in the southern Coastal Plain where 25 to 75 percent of the buds were infested in Columbus County by June 1, 20 days after the first egg was seen. Not until June 11 were larvae seen in Granville County. By mid-June averages of over 1 larva per 25 plants were common in east central counties and in mid-July averages had dropped to 0.5 larva per 25 plants. Active injury continued through July. Seasonal averages were about 6 times those of 1955 and 4 times those of 1954. TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - Early season infestations were moderate to heavy over most of the Piedmont and Coastal Plain. Some mountain counties reported light infestations by late May. An estimated 80 percent of transplants were damaged in Rockingham County by June 1, and some untreated fields in Forsyth County had 100 holes per first commercial leaf and 5 to 10 adults per leaf. Some fields in Person and Granville Counties had the first commercial leaves destroyed. Damage continued to accumulate on leaves of untreated flue-cured tobacco. HORNWORMS (Protoparce spp.) were unusually light in 1956. Averages were near 6 eggs and 4 small larvae per 25 plants in mid-July in eastern counties. Activity diminished in late season. The light trap catch of P. sexta was 19 days later than in 1955 in Granville County, and the first egg was found there on June 6. Demonstration plots showed 0 to 40 percent of untreated newly-set plants infested by the TOBACCO WIREWORM (Conoderus vespertinus) in eastern half of State. GREEN PEACH APHID (Myzus persicae) was heavy on some plant beds in the northern Piedmont in early May. Generally of little economic importance in field tobacco in the State in 1956. TOBACCO THRIPS caused bronzing of new leaves generally over the northern Piedmont area, but in most cases injury was of doubtful importance. CABBAGE LOOPER (Trichoplusia ni) attacked tobacco in Columbus and Johnston Counties. Newly-set field severely injured in Columbus County by VEGETABLE WEEVIL. Local infestations of 3 to 4 FOUR-SPOTTED TREE CRICKET (Oecanthus nigricornis quadripunctatus) per plant in some northern Piedmont counties. Damaging in small areas of fields. Burley tobacco plant beds were locally, severely, damaged by SNAILS and SLUGS in Yancey County. In early August, 4 adults of the TOBACCO FLEA BEETLE per leaf were present in some burley fields in Alexander, Alleghany and Caldwell Counties and were increasing.

Cotton Insects: BOLL WEEVIL (Anthonomus grandis) infestations varied greatly from field to field. Field populations were high in the southern Piedmont and Coastal Plains as was predicted by survey of overwintering populations. Poor timing of insecticide applications, unnecessary applications and use of insecticides without a previous population count were all seen and perhaps are more widespread than formerly believed. Southeastern counties, the heaviest infested, reported 2 to 23 percent of the squares punctured in untreated fields though most fields had some infestation in late June. At the same time untreated fields in Union County had 9 to 59 percent of squares punctured. Northern Piedmont and northeastern counties averaged only 0 to 8 percent of squares punctured. Even in early July in southern Piedmont counties infestations were spotty when first generation weevils emerged. Fall hibernation counts do not indicate any large change from the past year in 1957 populations. BOLLWORM (Heliothis zea) oviposition was noticeably active during June 18 to 22 but infestations of significance failed to develop except lightly and very locally. SPIDER MITES (Tetranychus cinnabarinus, T. telarius, T. atlanticus) were widespread and spotty throughout most of the cotton producing counties. In many instances populations increased markedly after treatments for boll weevils. Complete destruction of one field by a GRUB (Phyllophaga ephilida) and another by the SEED-CORN MAGGOT was seen. An instance of general feeding on cotyledonous leaves by PALE-STRIPED FLEA BEETLE (Systena blanda) was seen in Union County.

Forest, Ornamental and Shade Tree Insects: Infestations by SOUTHERN PINE BEETLE (Dendroctonus frontalis) in pitch, shortleaf and Virginia pines continued to be serious in Buncombe and Cherokee Counties. NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana) and RED-HEADED PINE SAWFLY (Neodiprion lecontei) was locally severe in eastern counties. Principal pests of oaks was an OAK SCALE (Lecanium quercifex). Maples throughout northern half of State were attacked early by WOOLLY ALDER APHID (Prociphilus tessellatus). Spotty infestations of mimosa by MIMOSA WEBWORM (Homadaula albizziae) occurred in the northern Piedmont. Scales, severely infested ornamental shrubs throughout the eastern half of the State. A WAX SCALE (Ceroplastes sp.), first reported in 1954, attacked many hosts and was reported general and severe in cities of Dunn and Southport. MEALYBUGS were a problem on many ornamentals. In addition to numerous reports of GRUBS, an unusual pest of lawns was A BURROWING WEBWORM (Acrolophus sp.). In nearly all cases it resulted in complete destruction of large areas, if not the entire lawn. Infestations occurred in the northern Piedmont.

Insects Affecting Man and Animals: Though known to be present from March 5 through June 7 SCREW-WORM (*Callitroga hominivorax*) failed to develop into an epizootic. Warm intervals during the winter are thought to have permitted sufficient reinfestation to maintain the parasite. Absence of hurricanes perhaps decreased the inland distribution of SALT-MARSH MOSQUITO (*Aedes sollicitans*) but bites of 25 to 50 per square foot of exposed skin per minute were not uncommon in coastal areas. All coastal counties were widely infested but very severe biting was periodic, usually not widespread and near the breeding areas. Severe biting by *Aedes taeniorhynchus* was limited mainly to the southern half of the coastline. An outbreak of *Psorophora howardii* occurred in Dare County in mid-September. COMMON MALARIA MOSQUITO (*Anopheles quadrimaculatus*) was biting at New Bern and Washington in late May. Adults of *Anopheles punctipennis* were biting in Wake County on February 20. Numerous larvae of a FLANNEL MOTH were received as were reports of injury to persons by their urticating hairs. Three reports of BEDBUGS (*Cimex lectularis*) were received. HORSE FLIES (*Tabanus* sp.) were biting pests all along the southeastern coast in the spring. Numerous complaints of presence of larvae of a SOLDIER FLY (*Hermetia illucens*) in manure under caged layers. Reports of chicken pests included FOWL TICK (*Argas persicus*), NORTHERN FOWL MITE (*Bdellonyssus sylviarum*), STICKTIGHT FLEA (*Echidnophaga gallinacea*) and a LAELAPTID MITE (*Haemolaelaps megaventralis*).

Household Pests: Homes, mostly in northern and western counties, were plagued by invasions of CLOVER MITES (*Bryobia praetiosa*) on warm days from January to May. CARPET BEETLE (*Anthrenus scrophulariae*), BLACK CARPET BEETLE (*Attagenus piceus*), VARIED CARPET BEETLE (*Anthrenus verbasci*), a FURNITURE CARPET BEETLE (*Anthrenus vorax*) and a DERMESTID (*Trogoderma inclusum*) were found in homes with damage usually general or severe. Infestations by GERMAN COCKROACH (*Blattella germanica*), BROWN-BANDED ROACH (*Supella supellectilium*) and AMERICAN COCKROACH (*Periplaneta americana*) in apartment houses, restaurants, and homes were reported with first two species most common. NORTHERN FOWL MITE caused occupants to temporarily abandon a home. Although reported occasionally, FLEAS (*Ctenocephalides canis* and *C. felis*) did not cause complaints they did last year. SPRINGTAILS (usually *Achorutes armatus*) caused concern to occupants in some buildings.

Structural Pests: EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*) was exceedingly common, but infestations by *Reticulitermes virginicus* and *Reticulitermes hageni* were also seen. Increased public interest is indicated by private homeowners. Other rather common structural pests were OLD HOUSE BORER (*Hylotrupes bajulus*) and numerous species of POWDER POST BEETLES.

Stored Products Pests: HIDE BEETLE (*Dermestes maculatus*) was usually reported from some form of stored, cured pork as was also the RED-LEGGED HAM BEETLE (*Necrobia rufipes*). Most stored meat infestations resulted in proportionately large losses. An unusual infestation by CIGARETTE BEETLE (*Lasioderma serricorne*) in a soybean meal - yeast mixture used for bee food was reported. Cost of control of *L. serricorne* in tobacco storage warehouses is estimated in the millions of dollars in North Carolina.

Beneficial Insects: There would have been on the average 25 percent more tobacco budworms in tobacco fields in east central counties had the larvae not been parasitized by an ICHNEUMONID (*Campoletis perdistinctus*). In June, LADY BEETLES were about 4 times as abundant as in 1955 on cotton. A unique beneficial insect, a PHYCITID (*Laetilia* sp.) was found feeding on the TULIPTREE SCALE which was severe in some western localities on tuliptrees. In some instances complete destruction of the scales resulted.

Miscellaneous Insects: Some reports of SLUGS, usually in flowers and vegetables were received. Reports of county agents indicate GIANT HORNET (*Vespa crabro* v. *germana*) occurs in most western areas. Fewer complaints than 1955 on an EARTHWORM MITE (*Fuscuropoda agitans*) in commercial fishworm beds.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

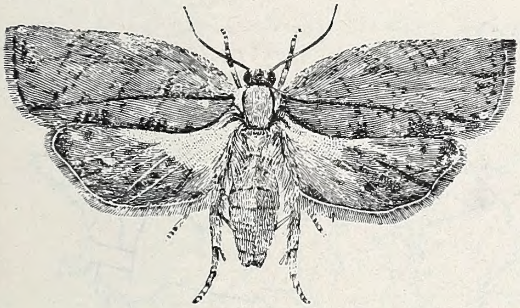
LIGHT-BROWN APPLE MOTH (Austrotortrix postvittana (Wlk.))

Economic Importance: Light-brown apple moth has become a major pest of apples in Tasmania (Australia) and certain parts of New Zealand. In years of abundant populations the tortricid may cause as much as 25 percent loss of the apple crop in Tasmania. It is listed as one of the most troublesome pests of citrus in New Zealand. Damage to fruit in storage has also been recorded.

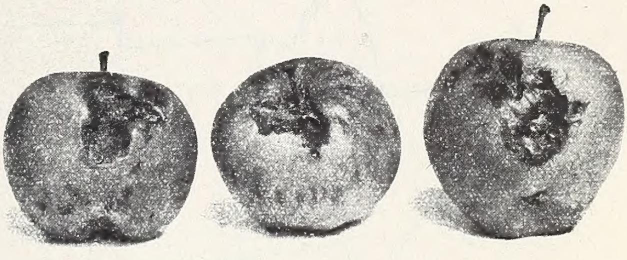
Distribution: This pest is indigenous to Australia and occurs in all apple-growing areas of that country but is chiefly found in a belt around the coast extending inland about 200 miles at the widest point. It also occurs in New Zealand, New Caledonia, Hawaii and England.

Hosts: Apple, litchee, strawberry, grape, pear, orange, apricot, currant, oak, pine, chrysanthemum, rose, eucalyptus and acacia. Also other garden and greenhouse plants.

Description and Life History: Life history of *A. postvittana* in Tasmania is as follows: Moths begin appearing in orchards during early summer. They are pale brown in color, less than half-an-inch long when resting. If disturbed, they make short erratic flights. Eggs are laid on apple leaves in batches of about twelve. They are pale green and almost flat. Young larvae feed principally on the underside of leaves in silken tunnels lying alongside the veins or the midrib. After about three weeks they abandon tunnels and continue to feed causing "ragging" and curling of foliage and pitting and scarring of fruit. The larvae pupate in folded or webbed leaves. In late summer another brood of moths emerge. Small caterpillars from this brood feed as long as the leaves remain on trees. Then the larvae drop and feed on cover crops or survive on orchard floor without feeding. At end of September when early shoots appear these larvae climb the trees and feed on such growth as is available. By the "pink-bud" stage a large proportion of blossom clusters nearest ground may be infested. This brood completes development in late October and gives rise to flights of moths. In Tasmania, there may be 3 generations a year on evergreens. (Prepared by Plant Pest Survey Section in cooperation with other ARS agencies). CEIR 7(9) 3-8-57.



Adult greatly enlarged

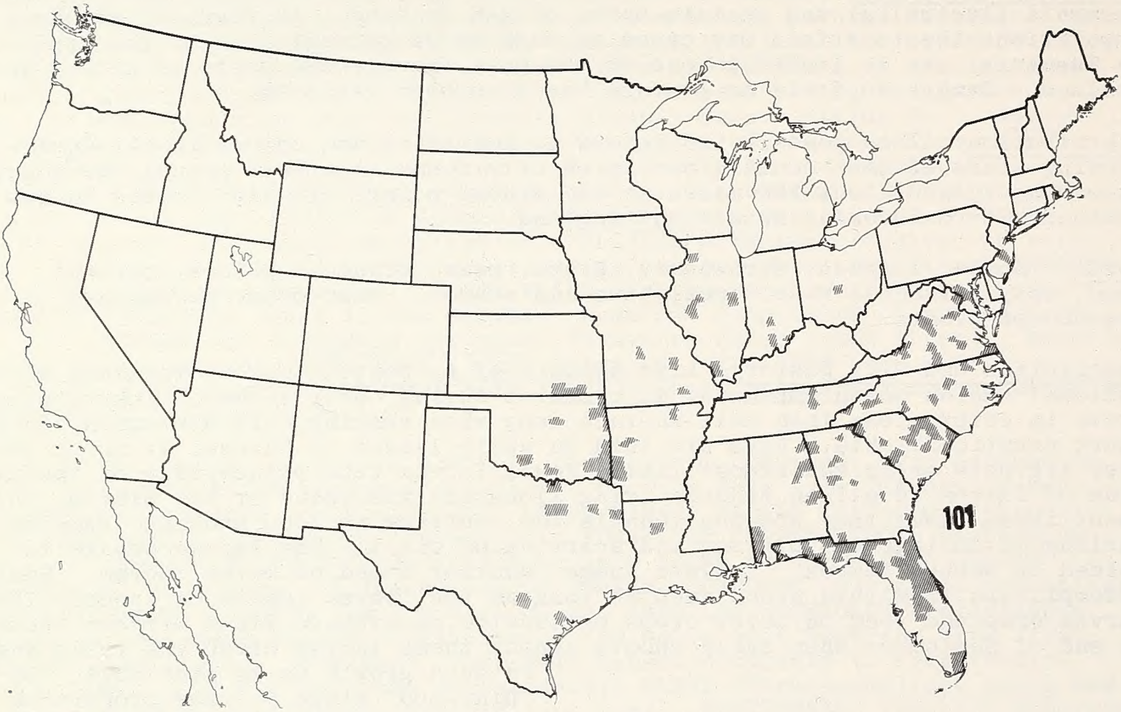


Characteristic larval damage to fruit

Figures. Adult from Australian Insects, K. C. McKeown, 1944, 303 pp. Sydney. Damage from Suppl. Tasmania Jour. Agric. 8(3):1-18, 1937, J. W. Evans.

DISTRIBUTION OF RANGE GRASSHOPPERS

Paradalophora phoenicoptera (Burmeister)



Paradalophora saussurei (Scudder)